

NOTES ON THE AUSTRALIAN REPRESENTATIVES OF
THE GENUS ACANTHOPLEURA, GUILDING, TOGETHER
WITH A DESCRIPTION OF POLYPLACOPHORA IN
THE WESTERN AUSTRALIAN MUSEUM.

By EDWIN ASHBY, F.L.S., M.B.O.U.

Read December 13, 1921.

The writer is indebted to Mr. L. Glauert, of the W.A. Museum, Perth, for the opportunity of examining and describing the specimens dealt with in this paper.

Acanthopleura gemmata (Blainville.)

(*Chiton gemmatus* (Blain), Dict. Sc. Nat. XXXVI., p. 544, 1825, *Chiton spiniger*, Sow. of Pilsbry, Man. Con. Vol. XIV., p. 222, auct.)

In November last year, Mr. Glauert placed some Chitons in my hands for identification, and amongst them were representatives of a large species with a spiculose girdle, but the whole of the exposed portion of the shell was eroded. On disarticulating one of them, it was seen that the portion of the sculpture that had in some measure been preserved corresponded with a shell given me by Mr. J. H. Gatliff, from Port Darwin, where he had himself taken it.

This shell was given me under the name *Acanthopleura spiniger*, Sow. When I showed it to Dr. Pilsbry, in Philadelphia, in 1918, he told me that he considered that it was the shell described by Blainville, as *Chiton gemmata*, in 1825, thus antedating Sowerby's name *spiniger*. I have no doubt as to the correctness of Dr. Pilsbry's determination. Dr. Pilsbry also said that it should be placed under his sub-genus *Amphitomura*, and I marked it accordingly.

On receiving the W. Austr. specimens from Maud's Landing, No. 9326, it became necessary to compare them with the forms occurring in the Northern Territory and Queensland. Dr. John Shirley kindly supplied me with specimens from Dunk Is. in that State.

In the Western Australian shells No. 9326, the insertion plate of the anterior valve is long, numerously slit, thick, the teeth serrated and deeply grooved rather than laminated on the outside. The

colour of the insertion plates is pale greenish blue. The Port Darwin shell is similar in all respects except that the teeth between the slits in both anterior and posterior valves are more laminated and less solid. This may well be accounted for in the fact that it is a half grown shell.

In the Dunk Is. shell the insertion plates of the end valves are not as long, the teeth more laminated, the colour dirty brown and the 8 slits in the tail valve not quite so well defined. As far as the eroded condition of the shell will allow determination, the sculpture of the shell and the girdle spines seem identical with the Port Darwin and Western Australian specimens.

Nevertheless the differences noted above in the insertion plate, especially of the tail valve, suggest that the Dunk Is. specimens may belong to a distinct geographical race. If it be thought wise to distinguish this form with a name, I should suggest that of *Queenslandica*. The wisdom or otherwise of adopting this course must be left for final determination on the examination of more and less eroded material.

The next step to determine was as to whether the Australian shells should be placed under Dr. Pilsbry's sub-genus *Amphitomura* of which *A. bourbonica*, Deshays, is cited by Dr. Pilsbry as the type?

In the valuable collection of Polyplacophora, which Commandant Paul Dupuis has so generously given to me, are two specimens of *Amphitomura bourbonica*, Desh., from Mauritius. These show in the tail valve short, blunt insertion plates with one slit each side, and accord perfectly with Pilsbry's description of that sub-genus.

It is quite certain that the Australian shells with their long insertion plates, multi-fissate in the tail valve, cannot be referred to this sub-genus. I then disarticulated a half grown specimen of *Acanthopleura* (*Mesotomura*) *echinata*, Barnes, from Valparaiso, Chile, which is Pilsbry's type for this sub-genus. The insertion plates are very different from the other representatives of the genus *Acanthopleura*, in the anterior valve they are long and thin, very deeply laminated on the outside and very similar in the tail valve, but in this valve instead of being bent forward, as is the case with the Australian shells, they are bent backwards, as in most species of *Polyplacophora*. There is a modified ventral slit and in the sinus between the sutural laminae there is a lobe or spade-like process similar to the living representatives of the genus *Loricella*, see my paper "Description of a new species of fossil *Loricella*, etc. (Papers and Proceedings Royal Society, Tasmania, 11th July, 1921). These very distinct characters in the tail valve sure will justify us in giving to Dr. Pilsbry's sub-genus *Mesotomura*, full generic rank.

This will leave three sub-genera under *Acanthopleura*: *Acanthopleura*, s. str., with multi-fissate tail valve with the insertion plates

long, grooved and bent forward, the sutural laminæ joined across the median line but without any spade-like process in the sinus; *Maugeria*, Gray, 1857, which has short insertion plates but in other respects corresponds very closely with the preceding sub-genus; and the third, *Amphitomura*, Pilsbry, which has been referred to above.

The Australian shells evidently belong to the first-named *Acanthopleura*, s. str., no representatives of the last two having yet been met with in Australia.

Acanthopleura spinger, Sow., Mag. of Nat. Hist. 1840, p. 287, Suppl. pl. XVI., f. 2; P.Z.S. 1841, p. 61; Conch. Illustr. f. 68. Reeve, Conch. Icon., t. 14, f. 75, Pilsbry, Man. Con. l.c.

I have well-preserved specimens in my collection from the west coast of Sumatra sent me by M. Nils Odhner, of Stockholm, which correspond with Sowerby's description and figure, with two exceptions: the radial ribs shown in the drawing of the anterior valve are less in evidence and of a less number; also in the specimen from Sumatra the girdle encroaches at the sutures more than half-way across the valves in a way that is not shown by Sowerby but is clearly depicted in Reeve's figure of a shell from the Philippines. As the locality from which Sowerby's type came is uncertain, I think we may conclude that it was not from Australia for the following reasons:—All the Australian shells I have seen from Queensland, Northern Territory and from Western Australia are short-spined shells. The Sumatra specimens and those figured by Sowerby are long-spined, two or three times as long as those from Australia. The sculpture of those from Australia is very distinct, being variously described as coalesced granules or broken wrinkles, very distinct from the widely spaced granules of the Sumatra shell, with which Sowerby's description well agrees; also, these latter have extensive encroachment of the girdle at the sutures, which is not the case with the Australian specimens. I therefore propose to adopt Pilsbry's recognition of our Australian shell as being con-specific with Blainville's *Chiton gemmatus*; but I differ from him in concluding that Sowerby's *Chiton spiniger* is the same species. I am convinced that his shell is a good species and not a synonym of *A. gemmata*, Blain. And I propose to recognise *A. spiniger*, Sow., in the shells from Sumatra.

Acanthopleura spinosa, Bruguiere (1792). *Chiton spinosus*, Brug. Jour. d'Hist. Nat., i., p. 25, t. 2, f. 1, 2 (1792).
(For other references, see Pilsbry l.c.)

Three specimens of this species are included, marked from North Western Australia, without a number. I have also one in my

collection from the same part. These all seem to be normal shells with black, pointed spines in the girdle reaching a maximum length of 7 mm., the sculpture of the shell being confined to coarse, wrinkled growth lines. On disarticulation, the anterior valve shows long insertion plates, 13 slits, teeth deeply grooved outside, edges of teeth serrated inside and coated with a thin plate leaving only the edges of the teeth protruding. Median valve one slit, sutural laminae very narrowly joined across the sinus, and there showing slight grooving. Posterior valve: insertion plates long, nine slits, not bent forward, almost vertical but bent slightly backwards, insertion plate deeply grooved outside, edge of teeth bluntly and irregularly serrate, quite different from the even serrations of the anterior valve. Inside of insertion plate smooth and solid, except near edge of teeth. The inside is purplish and the sutural laminae white. The fact that the insertion plates of the tail valve do not bend forward separates this species at once from *A. gemmata*, Blain.

Acanthopleura spinosa, Brug. var. *Monte Belloensis*, n.v.

From Monte Bello Island, No. 5888, one specimen in museum collection with abnormally developed spicules; and I have also a second specimen from the same locality in my collection given me some years ago by the same Museum. Both specimens are badly curled, and therefore measurements are approximate only. The one in the Museum is 65 x 21 mm., and the other slightly smaller; the spines of the former are all more or less broken, but measure up to 14 mm.; in my specimen the spines measure 20 mm. in length, and if absolutely perfect would be slightly longer. These spines are black, solid, much curved, tapering to a point, rugosely ridged longitudinally, and some show light colour rings more or less throughout their length. The long spines are very numerous, but in between them the girdle is beset with short, blunt spines mostly under a mil. in length. These are probably modified scales and are attached to the superficial layer of the girdle, while the long spines are deep seated and look as if capable of movement from the base in the living animal.

I am treating the two specimens described as co-types. Were more available and disarticulation possible, specific differences might be recognised; but for the present it must rank as a variety only.

Liolophura georgiana, Quoy. and Gaim.

While the genus *Liolophura*, Pilsbry, is included by Dr. Thiele under the super-genus *Acanthopleura*, the absence of insertion plate in the tail valve seems to fully justify the action of Dr. Pilsbry in giving it full generic rank. See his able treatment of this group (Man. Con. Vol. XIV., p. 240).

I have always been struck with the ability of *L. georgiana* to grip the rocks and also the extremely strong attachment of the girdle to the tail valve, whereas the absence of insertion plate in that valve would lead one to expect quite otherwise.

On close examination one notices that the wide, overhanging eaves of the tegmentum in this valve are apparently coated with a thin layer of calcareous material resembling the articulamentum, and in the adult specimen perforated with numerous rather large holes.

Further, between thick tegmentum of the eaves and the thickened terminal plate of the articulamentum there is a deep fissure extending from the outer edge on each side for fully a quarter of the width of the valve, and in this deep fissure, towards its base, in the wall of the articulamentum there are present a number of laminae. This feature is evidently a modification of the original laminated or serrated insertion plate. In a disarticulated, quarter-grown specimen from Yallingup I cannot see the perforations, which of course may be accidental in the adult, but in the juvenile the deep fissure is continuous the whole way across the valve, and while I could not see the lamina, I have no doubt they exist.

The strength of the girdle attachment of the tail valve is evidently due 1st, to the presence of the fissures; 2nd, to the laminae at its base; and, 3rd, possibly to the perforations, the whole forming a very interesting specialised modification of the insertion plates. 10 sps. Yallingup, 2 sps. Carnac, 4 Albany No. 5818, 2 Safety Bay Nos. 243/4.

Callochiton platessa, Rottnest Is., No. 5816.

Ischnochiton torri, Ire. and May, Rottnest Is., 1 sp. No. 5818.

Ischnochiton iredalei, Dupuis; *I. lineolatus*, Bl. of Iredale and May; *I. contractus*, Rv. of Pilsbry, auct., 1 sp. 5820.

Ischnochiton contractus, Reeve, off buoy Fremantle, 1 sp. No. 5812 = *I. decussatus*, Rv. auct.

Ischnochiton verconis, Torr. Bernier Is., Sharks Bay, 1 sp. This is the second record, and extends its range northward some 600 miles. Was omitted from my 1918 list through an oversight.

Ischnochiton virgatus, Reeve, Rat Is., Abrolhos, 3 sp., No. 4996; Cottesloe Beach, No. 7638, 7 sp.; Albany, No. 5822, 1 sp.

Ischnochiton (Haploplax) resplendens, Bed. and Mat., Yallingup 5807.

Ischnochiton (Heterozona) cariosus, Pilsbry, Bernier Is., 2 sp. 4137/8. The most northerly record, and was taken by writer at Dongara and Geraldton.

Callistochiton meridionalis, Ashby, Albany, 1 specimen, No. 5817.

- Plaxiphora albida*, Blainville, Ellensbrook, 1 specimen, No. 5814, Cottesloe Beach, No. 636.
- Acanthochiton kimberi*, Torr, Albany, 1 sp., No. 5809. Previously only recorded from Yallingup, where two sps. were taken by writer.
- Acanthechiton (Notoplax) sub-viridis*, Torr., Albany, 1 sp., No. 5811.
- Cryptoplax striatus*, Lamarek, Hopetoun, 1 sp., No. 5810.
- Rhysoplax torrianus*, Hed. and Hull, Albany, 1 sp., No. 5808.
- Rhysoplax tricostalis*, Pilsbry, Ellenbrook, 1 sp., No. 5814.
- Acanthopleura gemmata*, Blain, Monte Bello Is., 2 sp., No. 5887. Mauds' Landing, No. 9326; Bernier Is., No. 7130; Broome, No. 987.
- Acanthopleura spinosa*, Brug., North Western Austr., 2 sp., typical.
- Acanthopleura spinosa*, var. *Monte Belloensis*, Ashby, 1 sp., Monte Bello Is.
- Liolophura georgiana*, Blain. Before referred to.
- Tonicia (Lucilina) delecta*, Thiele, Bernier Is., Shark's Bay, Type Locality No. 4135, off Shell Sharks Bay, No. , Port Hedland, 1 sp., No. 8971. This specimen is a little unusual in sculpture, the dorsal and pleural areas showing parallel ribbing.
- Onithochiton scholviemi*, Thiele, Rottnest Is., No. 5813.
- Sclerochiton curtisianus*, Smith, Point Cloates, No. 9336. The entire surface of all shells is eroded, but the characters of the insertion plates and the girdle scales evidently place it in the genus *Sclerochiton*, Pilsbry. Up to the present, I have detected no character but such as is common to the shells from Port Darwin and Queensland. This is the first time representatives of this genus have been recorded from Western Australia.
- Lorica cimolea*, Reeve. Two worn median valves only. From Ellensbrook and Rottnest Is., No. 5818.
-